

**REMARKS**

In the 12-January-2009 final office action, all pending claims were rejected as being unpatentable over the prior art under 35 USC 103(a).

In paragraph 2, Claims 19 and 20 were rejected under 35 USC 103(a) as being anticipated by USP 2,680,065 to Atwell in view of USP 5,306,481 to Mansour.

In paragraph 3, Claim 21 was rejected under 35 USC 103(a) as being unpatentable over USP 2,680,065 to Atwell in view of USP 5,306,481 to Mansour, and evidenced by USP 5,861,046 to Andersson.

In paragraph 4, Claims 19-23, 25, 26, 28-31, 33-38, 40-43, 45, 94-103, 105-112 and 114 were rejected under 35 USC 103(a) as being unpatentable over USP 5,752,994 to Monacelli in view of Mansour and USP 2,680,065 to Atwell.

In paragraph 5 of the office action, claim 19 was rejected under 35 USC 103(a) as being unpatentable over USP 4,097,361 to Ashworth in view of Mansour.

In paragraph 6 of the office action, claims 23, 38, 100 and 110 were rejected under 35 USC 103(a) as being unpatentable over Monacelli, Mansour and Atwell as applied to claims 19, 33, 94 and 106, and further in view of USP 5,624,470 to Tanca.

Claims 33-38, 41-43, 45, 94-103 and 105-110, as amended, and new claims 115-120 are being submitted for the Examiner's consideration.

**Amendments to the Claims**

Claim 19 and all claims depending thereon have been canceled.

Claims 40, 111 and 112 have also been canceled.

Claims 33, 94 and 106 have all been amended to recite the step of "receiving bed solids from the fluidized bed directly into the solids collection reservoir." Support for this language can be found in the original application at, e.g., page 23, lines 2-3 where it is stated that "[A]s shown, the carbon trim cell 40 receives bed solids from the fluidized bed 14."

Claims 33, 94 and 106 all now recite that “the solids collection reservoir is maintained at a higher temperature than the fluidized bed”. The “maintained at a higher temperature limitation” was previously found in now-canceled claims 40 and 112.

Claims 33, 94, 101, 105 and 106 have been amended to clarify that the carbon particles which comprise a “first portion” and a “second portion” are “within the bed solids received into the solids collection reservoir”. Claim 45 has been amended to eliminate redundant language concerning these carbon particles.

New dependent claims 115-117 recite the step of “introducing steam via a port directly into the fluidized bed to serve as the fluidizing medium.” Support for this language comes from Fig. 1 (showing port 28) and the associated original text at page 12, lines 7-10, where it is stated that “[T]he fluid bed apparatus 10 is also provided with a port 28 near the bottom of the reactor for introduction of a fluidization medium which may be steam . . .” It is understood that such a port for introducing the fluidization medium is present in all embodiments.

New dependent claims 118-120 recite that the solids collection reservoir is operated as a fixed bed. Support for the language that the solids collection reservoir is operated as a fixed bed can be found in the original application at, e.g., page 25, lines 15-17: “The bed drain nozzle, as mentioned above, may operate as a fluidized bed or a fixed bed. Further the process may be carried out in a batchwise manner or in a continuous manner.”

### **Patentability of pending independent claims 33, 94 and 106**

Independent claims 33, 94 and 106 recite, inter alia:

- (1) the solids collection reservoir<sup>1</sup> is located below the bottom portion of the fluidized bed;
- (2) gaseous medium is fed through the solids collection reservoir and into the bottom portion of the fluidized bed; and
- (3) the solids collection reservoir receives bed solids directly from the fluidized bed.

Furthermore, independent claims 33 and 106 recite:

---

<sup>1</sup> In paragraph [0014] of the present published application 2004/0182000, it is explained that one embodiment of the “solids collection reservoir” is a ‘bed drain nozzle’.

- (4) a first portion of carbon particles within the bed solids received into the solids collection reservoir is oxidized, and a second portion of the carbon particles is “endothermically converted to a gas” (claim 33) or “steam reformed” (claim 106).

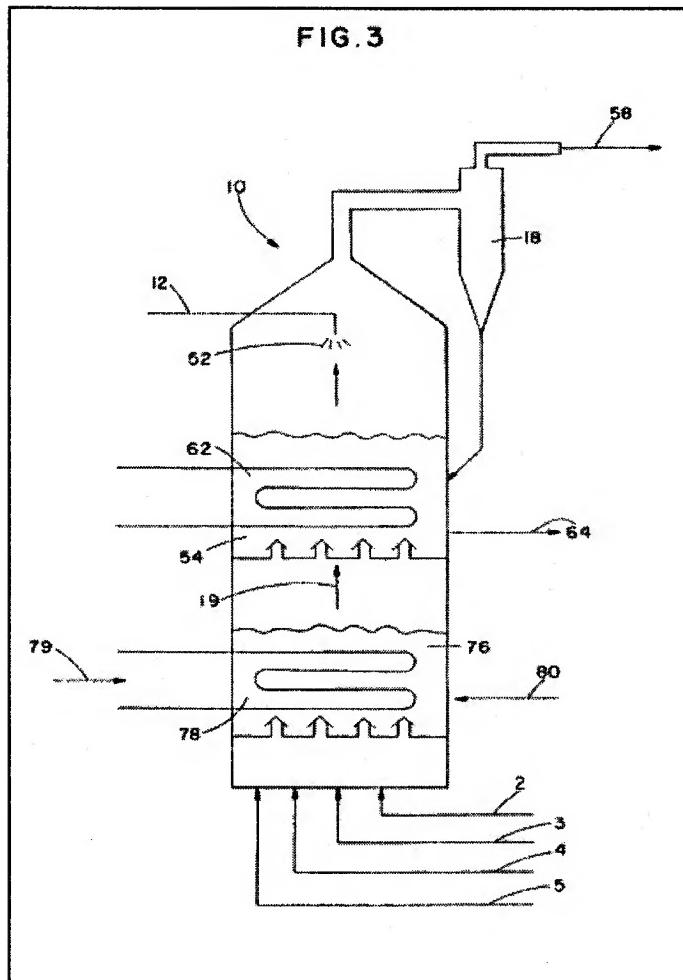
And independent claim 94 recites:

- (5) gasifying carbon particles within the bed solids received into the solids collection reservoir.

It is submitted that no combination of the cited references discloses any of these combinations of features.

In the final office action mailed January 12, 2009, the Examiner asserted that Monacelli’s “lower fluidized bed 76” was a “solids collection reservoir”. Applicant disagrees. Nothing in Monacelli indicates that lower fluidized bed 76 serves as a solids collection reservoir (for, say, bed solids from the upper fluidized bed 54). In any event, Monacelli clearly does not disclose the step of “receiving bed solids from the fluidized bed directly into the solids collection reservoir”, as recited in pending independent claims 33, 94 and 106. In this regard, it is particularly noted that Monacelli discloses structure 64, which appears in Monacelli’s Figs. 2 and 3. Monacelli’s structure 64 is described both as an “overflow pipe” (col. 5 lines 39-40) and as “bed drains for the discharge of solid reaction products” (col. 5, lines 51-52). In Monacelli’s Fig. 3 (reproduced below, and upon which the Examiner relies), Monacelli’s “overflow pipe”/“bed drains” 64 is seen emerging from the upper fluidized bed 54, but not into the lower fluidized bed 76.

Since the one structure of Monacelli that (a) emerges from the upper fluidization bed 54, and (b) is described as a “bed drains for the discharge of solid reaction products” does not direct flow to the lower fluidization bed 76 (which the Examiner regards as the presently claimed “solids collection reservoir”), it is submitted that Monacelli does not disclose “receiving bed solids from the fluidized bed directly into the solids collection reservoir”, as recited in each of the pending independent claims. Atwell does not disclose this either.



In addition, with respect to claims 33 and 106, none of the cited references discloses that a first portion of carbon particles within the bed solids received into a solids collection reservoir is oxidized while a second portion of the carbon particles is “endothermically converted to a gas” (claim 33) or “steam reformed” (claim 106). Similarly, with respect to claim 94, none of the cited references discloses “gasifying carbon particles within the bed solids received into the solids collection reservoir.”

In view of the foregoing, it is submitted that independent claims 33, 94 and 106 all define over the cited combination of references.

With respect to new dependent claims 118-120, it is submitted that neither Monacelli nor Atwell disclose a “solids collection reservoir” that is configured as a “fixed bed”. In this regard, it is first noted that one skilled in the art would not operate Monacelli’s “lower fluidized bed 76” as a fixed bed. This is because Monacelli’s two fluidized beds 54 and 76 operate in series with respect to gas flow (col. 6, lines 2-3). The primary intent of lower fluidized bed 76 is to heat the fluidization medium 19 to the temperature of the upper fluidized bed 54 by employing a heat exchanger 78. This requires that lower fluidized bed 76 be a fluid bed and not a fixed bed for satisfactory heat transfer. In a similar vein, Atwell employs two fluidized beds 37 and 44, and the incorporation of heat exchanger 57 in the second fluidized bed 44 mandates a fluidized bed, rather than fixed bed to promote good heat exchange. Thus, no combination of Monacelli and Atwell would motivate one skilled in the art to replace the second fluidized bed 76 (Monacelli) and 44 (Atwell) with a fixed bed.

With respect to all claims not specifically mentioned, it is submitted that these are patentable not only by virtue of their dependency on their respective base claims and any intervening claims, but also for the totality of features recited therein.

Reconsideration of the application is requested. All pending claims are believed to be allowable over the prior art of record. An early notice of allowance is solicited so that the application may proceed to issue.

An RCE is being concurrently submitted to consider the changes of the present amendment. The Director is authorized to charge any required fees, including extension of time fees, to Womble Carlyle’s Deposit Account No. 09-0528 (T127 1010.1).

Respectfully Submitted,

Date: 20-Mar-2009

Nanda K. Alapati/  
Nanda K. Alapati (Reg. No. 39,893)  
703-394-2216  
USPTO Customer No. 26158